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10/649,037	08/27/2003	Naoki Ueda	4041J-000760	5113

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EXAMINER

FORD, JOHN K

ART UNIT PAPER NUMBER

3753

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/649,037

Applicant(s)

UEDA, NAOKI

Examiner

John K. Ford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on July 27, 2005
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 9, 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Applicant's response of July 27, 2005 has been studied carefully. New claims 11 and 12 have been added and are alleged to be supported by the specification, claims and drawings as originally filed. This has forced the Examiner to re-read the entire specification and original claims – an exercise that is time-consuming and takes away from the extremely limited time allotted for examination. In the future, with an eye toward improving the examination process, and as a courtesy to the Examiner please indicate where support for new limitations can be found in the original disclosure.

Applicant's election of Group I (heat exchangers of different materials) and the species of Figure 1, without traverse is acknowledged. Applicant has identified claims 1-3, 8, 10 and (newly presented) 12 as being readable on the elected species. Claims 4-7, 9 and 11 (because it depends on withdrawn claim 9) are withdrawn from consideration at this time.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Original Figure 2 and the original specification (e.g. page 6, lines 21-22) describe intercoolers 100 and 200 as being substantially

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identical. There is nothing in the original specification, claims or drawings to support a "multi-layered" tube construction (there appears to be only one layer of tubes in each of intercoolers 100 and 200), that the "board" thickness (whatever that is) is greater in one of the intercoolers than the other, and that each of the tanks of the second heat exchanger (one of the intercoolers) have a "board" thickness thicker than that of the first heat exchanger (the other of the intercoolers).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "board thickness" is not a term of art and the original specification, claims and drawings are devoid of any indication of what the term might mean. Heat exchangers are three-dimensional objects and have many different thicknesses measured in those three dimensions. The claims provide no reasonable basis for the reader to ascertain which of those thicknesses is being referred to by the phrase "board thickness."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10 a fluid cannot be "equal to and above" a temperature at the same time. Applicant probably meant, "equal to *or* above." This is a repeated rejection, which was not addressed in applicant's last response.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Tholen (4,236,492) and Ruppel et al (6,688,292).

In Ruppel, Figure 3, an internal fluid 2 flows through pre-cooler 3 and then through heat exchanger 1' (comprised of heat exchangers 4 and 5). The pre-cooler is made of a more erosion-resistant and temperature-stable material (e.g. copper-zinc alloy) than the heat exchanger 1' (e.g. aluminum). See col. 2, lines 42-46 and col. 4, lines 39-45 of the '292 patent, incorporated here by reference.

Regarding claims 8 and 10, the intended fluids and intended temperatures of operation do not import any structural limitation into apparatus claims and are not given weight in a claim directed to the apparatus itself. See MPEP 2114, incorporated here by reference.

Tholen, Figure 1, is the relevant Figure. No materials of construction for high temperature intercooler 4 and low temperature intercooler 5 are disclosed in Tholen. To have made intercooler 4 of a more heat resistant alloy (e.g. a copper zinc alloy) and intercooler 5 of conventional aluminum would have been obvious in view of the teaching of Ruppel with regard to the construction of the pre-cooler (3) and the heat exchanger (4 and 5) of Ruppel.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tholen/Ruppel as applied to claim 12 above, and further in view of Ambros et al (6,619,379) and/or Vinh (5,845,705) and/or Dey et al (6,786,275).

To the extent that the term "board thickness" has any meaning in claim 12, the Examiner offers the following obviousness analysis.

Ambros teaches multi-layer tubes and different core depths in intercoolers col. 5, line 65 –col. 6, lines 18, incorporated here by reference. Vinh teaches well-known multi-layer construction in charge-air coolers in Figure 2 as well as tanks with different thicknesses. Dey teaches multi-layer construction in Figure 7 and different thickness tanks. To have varied these well known parameters to obtain the desired amount of heat exchange in a given space is what engineers are routinely employed to do. Where vertical heights are limited (e.g. smaller compact/sports cars) because of low hood lines, it would have been obvious to have increased the number of tube layers to obtain the desired amount of heat transfer. Likewise, to have changed the core depth as an inverse function of the relative conductivity of the cores would have been obvious to balance the heat transfer in the two cores. Finally to have made the headers thicker

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than the tube cores would have been obvious in view of either Vinh or Dey to aid in construction of the device


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to John Ford at telephone number (571) 272-4911.

Ford

8/24/05



John K. Ford  
Primary Examiner